H.264 AVC IP Cameras

INSTRUCTION MANUAL

Executive Summary

The video compression engine of the H.264 AVC (Advanced Video Coding) IP camera provides high video quality, full D1 resolution, bandwidth efficiency, and real-time streaming. The cutting edge of H.264 AVC main profile encoding technology can provide better compression rate and superior video quality at 56 Kbps to 3 Mbps bit rate. Dual streaming design, JPEG and H.264 AVC allow to stream video at low bandwidth (Internet) and high bandwidth (LAN) for optimizing video quality. Low latency design for both Intranet and Internet is a key factor of operating PTZ. For PTZ application, the PTZ web interfaces including lens absolution positioning are designed for easy-to-use purpose.

Key Features

- True H.264 AVC/MPEG-4 part 10 real-time video compression
- Full D1 resolution at 720 * 480 (NTSC)/720 * 576 (PAL) in live monitoring
- Full duplex H.264 AVC and JPEG streaming
- HTTP ServerPush, UDP unicast, and UDP multicase supported
- Motion detection engine for image alarm notification via Email or FTP
- Built-in HTTP server for easy-to-use remote surveillance
- Absolute lens positioning controlled from web interface
- Constant bit rate (CBR)/variable bit rate (VBR) supported
- H.264 AVC I, B, and P frames supported
- Bit rate adjustable
- B frame periods adjustable
- Network time protocol (NTP) supported
- Dynamic DNS (DDNS) supported
- PPPoE supported
- PTZ video-click-n-go (PTZ model only)
- PTZ absolute position positioning (PTZ model only)
- HTTPAPI software integration provided
  Free Java Phone, Window Mobile, and PDA software support
- Support iPhone
- Podcast protocol supported up to 15 FPS video and audio live monitoring for 3GPP AAC/G.711 audio (for audio models only)
- Free 36 channels CMX Software

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VLC is registered trademarks of the respective holders. VLC Plugin ActiveX control is re-distributed based on GNU GENERAL PUBLIC LICENSE Version 2. The source code can be found at http://www.videolan.org/vlc/download-sources.html.

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Intel, Pentium, and Intel® Core™ 2 Duo are registered trademarks of Intel Corporation.

Other names of companies and their products mentioned in this manual may be trademarks or registered trademarks of their respective owners.

Other References

For advanced HTTP network software development, please refer to HTTPAPI document in the product CD or download the document from company web site.

For free mobile surveillance, please refer to eMobile document in the product CD or download the document from our company web site.

Caution

- Do not drop or strike this equipment
- Do not install the equipment near any naked flames or heat sources
- Do not expose this unit to rain, moisture, smoke or dust environment
- Do not cover the opening of the cabinet with cloth and plastic or to install this unit in poor ventilated places. Allow 10cm between this unit and its surroundings
- Do not continue to operate the unit under abnormal conditions such as detection of smoke, strange smell or no display on screen while power is turned on
- Do not touch the power connection with wet hands
- Do not damage the power cord or leave it under pressure
- Do not operate this unit near magnet, speaker system, etc., to avoid unnecessary magnetic interference
- Connection cables should be grounded properly

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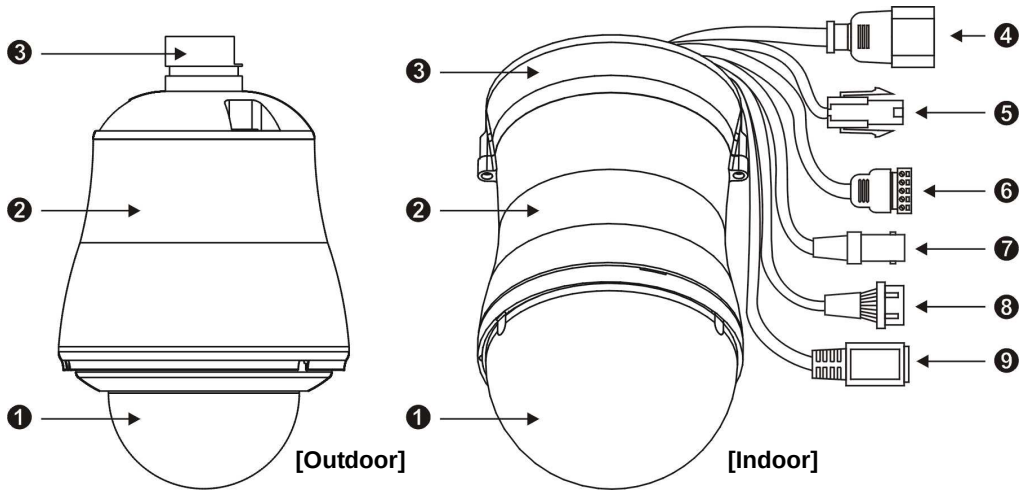
Chapter 1 System Overview

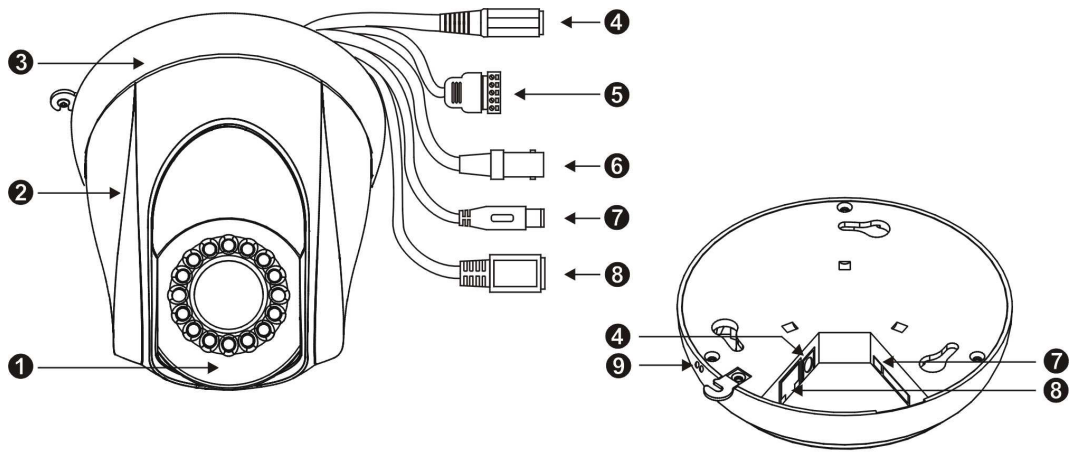
For system installation, please first read device user manual. This user manual focuses mainly on system operations and specifications for network module of the H.264 AVC IP camera. The system diagram of each model are shown as in the follows:±

H.264 AVC IP Fast Dome Series



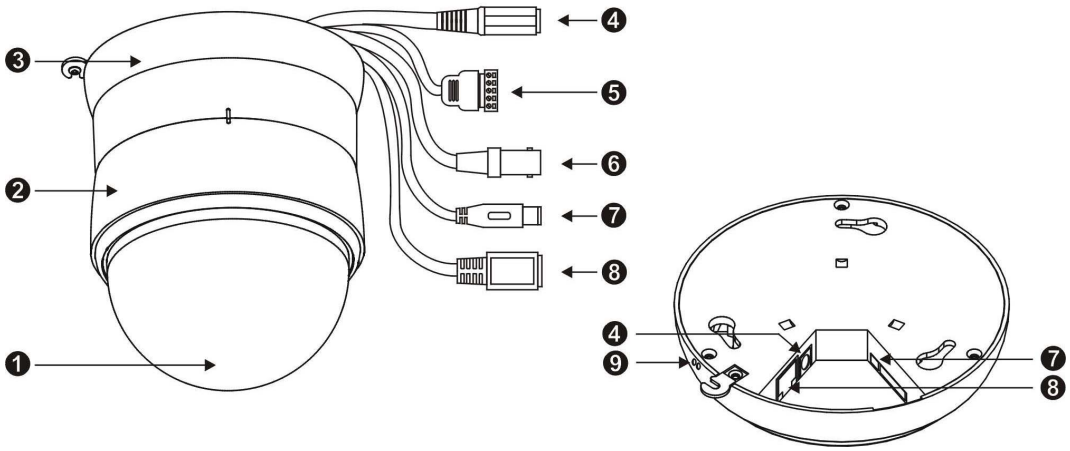
1. Dome Cover
2. Camera Case
3. Bottom Chassis
4. Power In Jack (AC100~240V)
5. Power In Jack (AC24V)
6. RS-485 In/Out Terminal
7. Video Out Jack
8. Alarm In/Out Connector
9. RJ-45 Jack

H.264 AVC IR IP Fast Dome Series



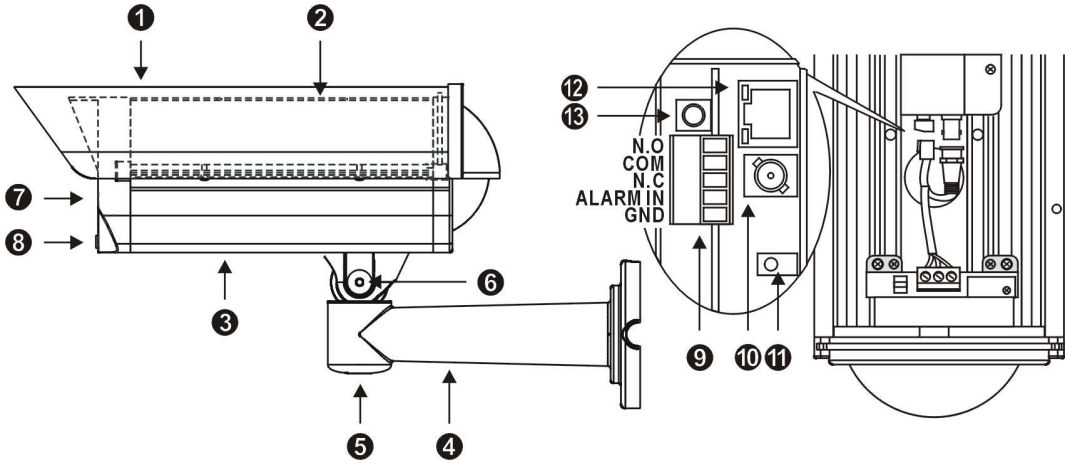
1. Camera Chassis
2. Camera Case
3. Bottom Chassis
4. Power In Jack (DC12V)
5. Alarm In/Out Connector
6. Video Out Jack
7. Audio In/Out Jack
8. RJ-45 Jack
9. LED

H.264 AVC IP Fast Dome Series



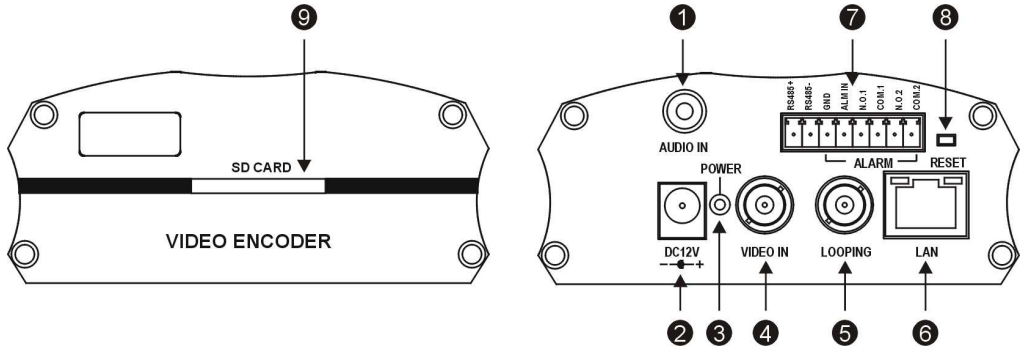
1. Dome Cover
2. Camera Case
3. Bottom Chassis
4. Power In Jack (DC12V)
5. Alarm In/Out Connector
6. Video Out Jack
7. Audio In/Out Jack
8. RJ-45 Jack
9. LED

H.264 AVC D/N Super Hi-Res. Vari-Focal Infrared IP Camera Series



1. Sun Shield
2. Top Cover
3. Bottom Chassis
4. Bracket
5. Pan Adjustment Screw
6. Tilt Adjustment Screw
7. Window
8. Sensor Cap
9. Alarm In/Out Connector
10. Video Out Jack
11. Power LED Indicator (Green LED)
12. RJ-45 Jack
13. Load Default Button

H.264 AVC Video Encoder Series



1. Audio In
2. Power In Jack (DC12V)
3. Power LED Indicator (Green LED)
4. Video In Jack
5. Video Out Jack
6. RJ-45Jack
7. Alarm In/Out Connector
8. Load Default Button
9. SD Socket

Chapter 1-1 System Requirements

The IP Camera's H.264 AVC video compression technology can provide high compression rate and superior video quality. However, the performance highly depends on both CPU computational power of a client PC and the network bandwidth for transmitting video streaming. The following sections specify system requirement for running H.264 AVC:

Chapter 1-2 Number of Video Clients Allowed Running on a PC

If bandwidth is sufficient, number of H.264 AVC software decoder for decoding H.264 AVC streaming at full D1 resolution running on same PC is benchmarked as in the following figure:

CPU	Number of H.264 AVC decoders	Resolution
Intel Pentium 4 1.80GHz	1	Full D1
Intel® Core™ 2 2.33GHz	4	Full D1

Chapter 1-3 Minimum Bandwidth Requirement

Please reserve 20% more bandwidth for specified bit rate. For example, if the video streaming bit rate control is set to 1 Mbps. The network should reserve at least 1.2 Mbps bit rate to gain maximum performance. Number of client connections allowed at 1Mbps (upload and download) is calculated as:

Bit rate at	Number of clients
256 Kbps	8
512 Kbps	2
1024 Kbps	1

If your application is running for both Internet and LAN, it is highly recommended to use JPEG encoding for Internet, especially very low bit rate environment. It can maximize H.264 AVC video quality for LAN application.

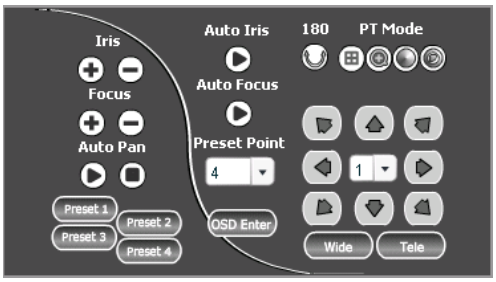
Chapter 1-4 Software Requirements

Third party software components are required for web interface. When you first time login the IP camera using Internet Explorer, it prompts for a security warning dialog box for downloading VLC Plugin if your computer connects to the Internet. Please click on Install button to download.

Internet Explorer - Security Warning
Do you want to install this software?
Name: Merit Lilin Enterprise Co., Ltd.
Publisher: Merit Lilin Enterprise Co., Ltd.
More options
Install
Don't Install
While files from the Internet can be useful, this file type can potentially harm your computer. Only install software from publishers you trust. What's the risk?

You can also visit our company web site at Support->Software->VLC H.264 Software Decoder for download. If you do not have Internet access, please install VLC H.264 Software Decoder from product CD shipped with the product. It is highly recommended to download the software mentioned above. Version 0.9.96 or above built by our company has modified for transmitting H.264 AVC over low bandwidth Internet environment.

Flash player is also required for controlling the PTZ device. Please visit http://www.adobe.com/products/flashplayer to download the software component.



Chapter 2 Before Access IP Camera

Before accessing the IP camera, make sure that camera's analog BNC output, RJ-45 network cable, audio cable, and IP camera's power cable are properly installed. For setup IP address, please consult your network administrator for available IP addresses. The default IP address of IP camera is 192.168.0.200. User can also user default IP address to verify IP camera's network connection.

Chapter 2-1 DIP Switch Settings

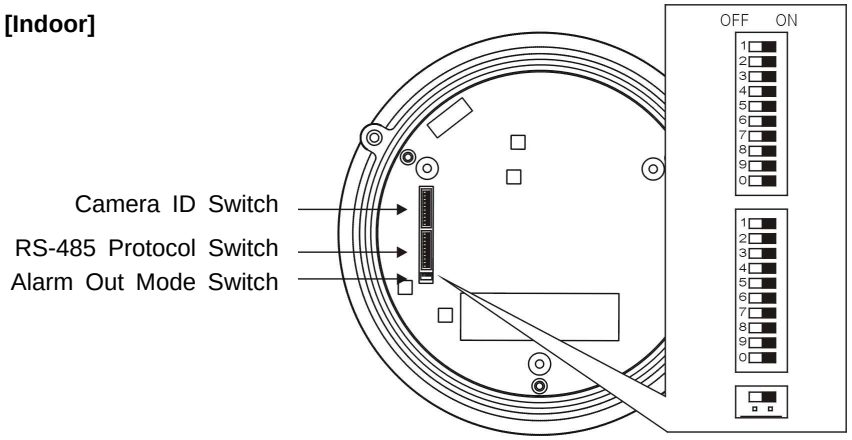
The DIP switch settings (manufacturing default) are defined as follows:

- DIP Switch #1: RS-485 IN Terminal Resistor ON/OFF is set to ON.
- DIP Switch #2: RS-485 OUT Terminal Resistor ON/OFF is set to ON
- DIP Switch #3: RS-485 Communication Mode Selection is set to OFF for half duplex access.
- DIP Switch #4 and #5: Transmission Speed Setting is set to 9600 bps.
- DIP Switch #6, #7, #8, and #9: Protocol Setting is set to MLP2.
- Camera/RS-485 ID address setting is set to ID #1.

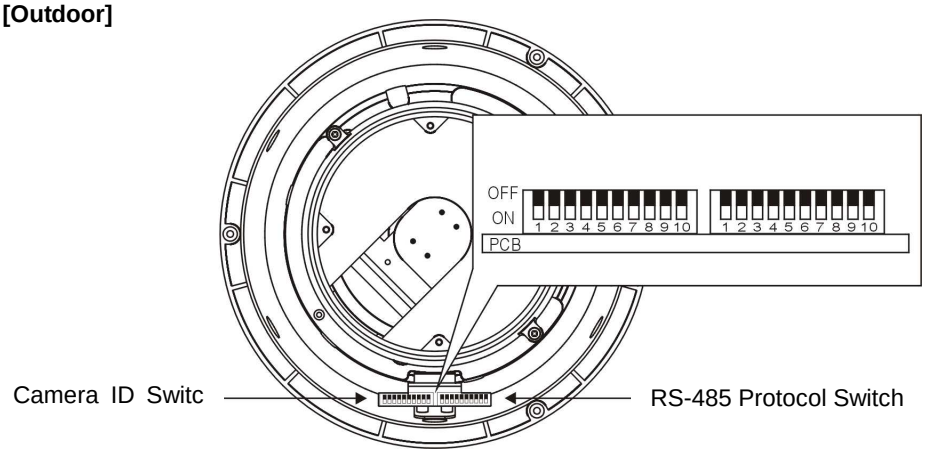
H.264 AVC IP Fast Dome Series

For more DIP switch settings for H.264 AVC IP Fast Dome, please refer to IP Fast Dome's user manual for detail.

[Indoor]

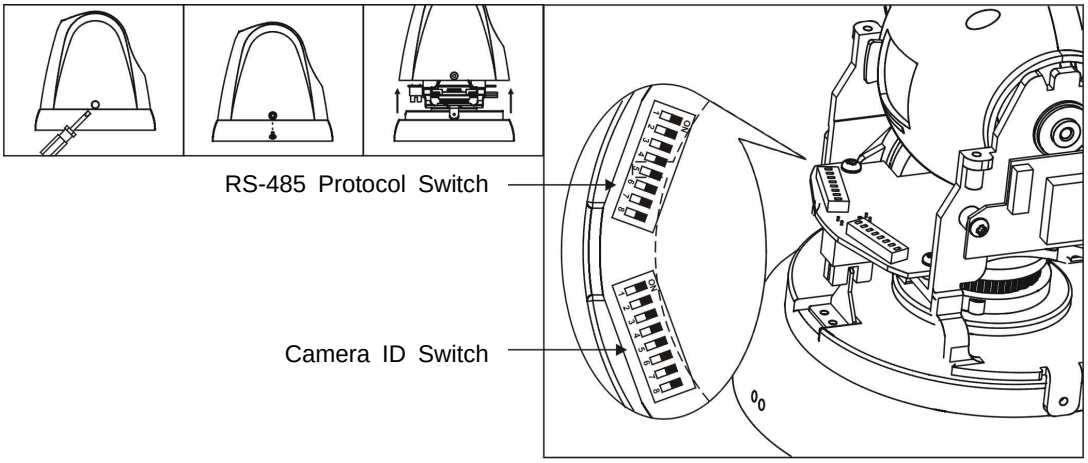


[Outdoor]



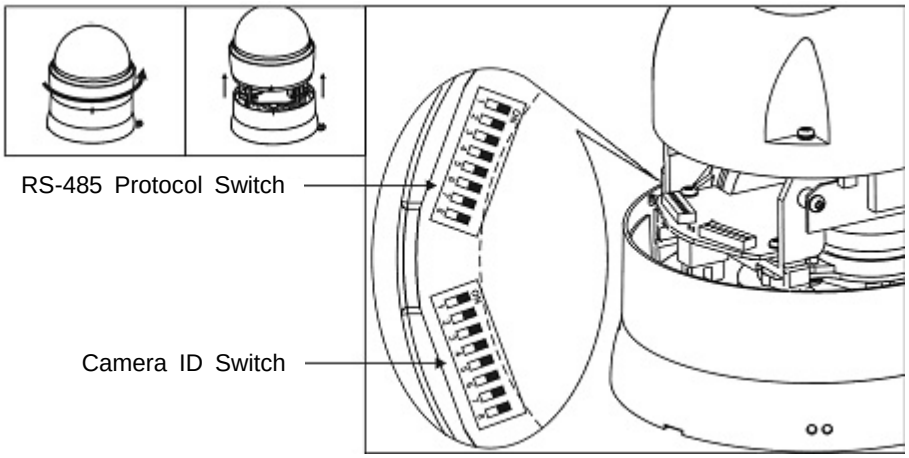
H.264 AVC IR IP Fast Dome Series

For more DIP switch settings for H.264 AVC IR Fast Dome, please refer to IP Fast Dome's user manual for detail.



H.264 AVC IP Fast Dome Series

For more DIP switch settings for H.264 AVC Fast Dome, please refer to IP Fast Dome's user manual for detail.



If Camera/RS-485 ID needs to be changed manually, please go to the hyperlink at "Configure ->PTZ Setting" from Internet browser. Change Camera/RS-485 ID from the web interface accordingly.

For example, DIP switch of Camera/RS-485 ID is set to #2 for a fast dome. Please change the Camera ID to #2.

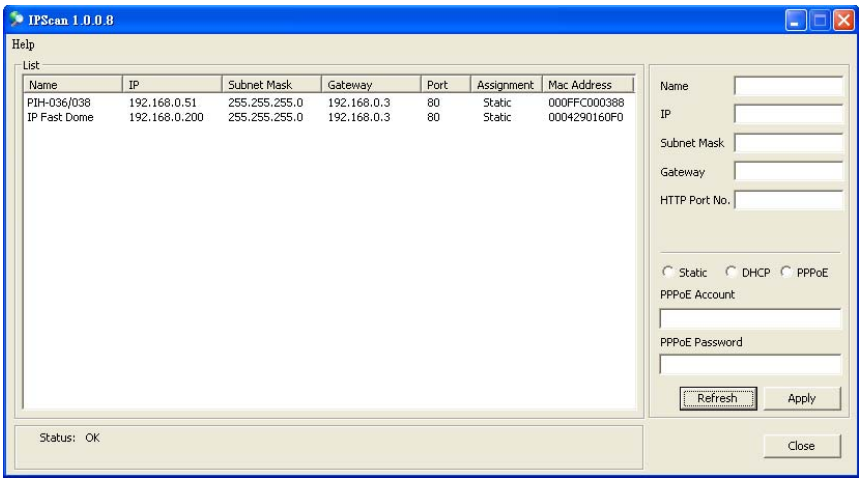
Warning: H.264 AVC IP PTZ Camera uses MLP-2 protocol communicating its PTZ module.

Warning: Combination use of both H.264 AVC IP PTZ Camera and Keyboard Controller, please set keyboard controller to ONE SHOOT (TRANSMISSION->ONE SHOOT)。.

Chapter 2-2 Configure IP Address Using IPScan Utility

To configure IP address using IPScan utility, copy IPScan application from installation CD to your local PC or execute IPScan software from installation CD directly. IPScan utility can also be downloaded from our company web site. To change IP address, subnet mask, gateway, or HTTP port, please follow steps below:

- Run IPScan utility.
- Click on Refresh button. All available devices get listed in Device list box.
- Select the device item in Device list box.
- Edit or modify addresses in IP, Subnet Mask, Gateway, or HTTP Port edit box.
- Click on Apply button to configure the settings.
- Click on Refresh button to verify the settings.



Note: Make sure that IPScan is version 1.0.0.17 or above to support H.264 AVC IP camera

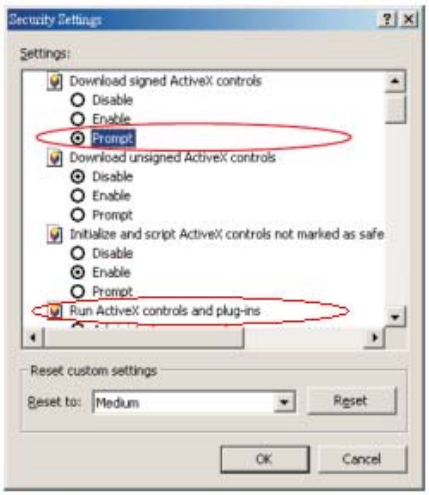
Chapter 2-3 Configure IP Address Using HTML Page

To change IP address using HTML page, please first type the default IP address, 192.168.0.200 in Internet browser and follow steps below:

- Logon H.264 AVC IP camera using default username and password—“admin” and “pass”.
- Click on “Configure” hyper link.
- Click on “Network->General” hyper link.
- Type or modify edit box for IP address, subnet mask, gateway, or HTTP connection port.
- Click on Submit button.

Chapter 2-4 Internet Browser Setting & Software Component Required

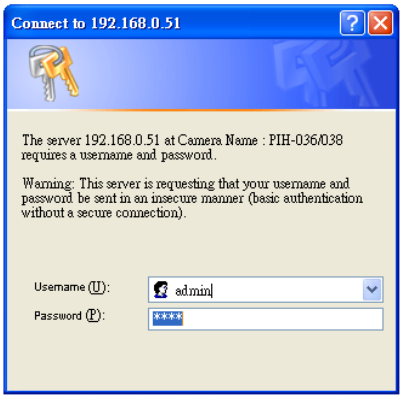
Make sure that your Internet Browser allows signed ActiveX plug-in running on your PC. Set “Download Signed ActiveX plug-in controls” to “Prompt” and “Run ActiveX control and plug-in” to “Enable” at Internet Explore->Tools->Options->Security Settings.



After finishing above security settings, accessing H.264 AVC IP camera’s live video by default IP address of H.264 AVC IP camera using Internet Explorer will prompt a Security Warning dialog box. Click on OK button to download the ActiveX directly from H.264 AVC IP camera.

Chapter 2-5 Login

There are two levels of user authentication including administrator and guest for accessing the H.264 AVC IP camera.


Connect to 192.168.0.51
The server 192.168.0.51 at Camera Name : PIH-036/038 requires a username and password.
Warning: This server is requesting that your username and password be sent in an insecure manner (basic authentication without a secure connection).
Username (U):
admin
Password (P):
****

The default settings of username and password are described as follows:

	Administrator	Guest
Username	admin	guest
Password	pass	guest

To logon the H.264 AVC IP camera, please type username and password in logon HTML page and click on Submit button to enter the system.

Chapter 3 Start Using H.264 AVC IP Camera Network Features

After login H.264 AVC IP camera as administrator, there are two main features—system operation and configuration. Operation and configuration features are described as follows:

Chapter 3-1 IP Camera Operational HTML Page

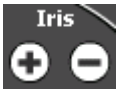
H.264 AVC IP Fast Dome Series operational HTML page layout

H.264 AVC IP Fast Dome Series operational HTML page layout

1. **Video size, streaming, and snapshot**— H.264 and JPEG streaming hyperlinks
2. **Configure hyper link**— Device configuration web pages
3. **Status bar**— Device name and timer
4. **Video ActiveX Control**— Video ActiveX control for displaying video streaming embedded inside an HTML page
5. **PTZ control panel**

Chapter 3-2 PTZ Features

All the PTZ features are described as follows:



Iris +: Iris large

Iris –: Iris small

Auto Iris: Set the device to auto Iris mode.

Focus +: Focus far

Focus -: Focus near

Auto Focus: Set the device to auto focus mode.

OSD Enter: Enter PTZ device's internal setting.

OSD Esc: Exit PTZ device's internal setting.

Wide: Lens zoom out

Tele: Lens zoom in

Preset: Preset points recall

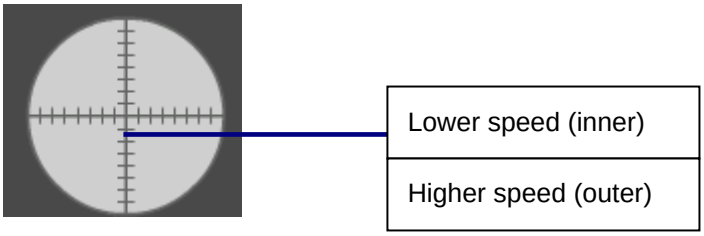
Note: Please read PTZ's instruction manual for OSD setting.

Chapter 3-2-1 PT Mode

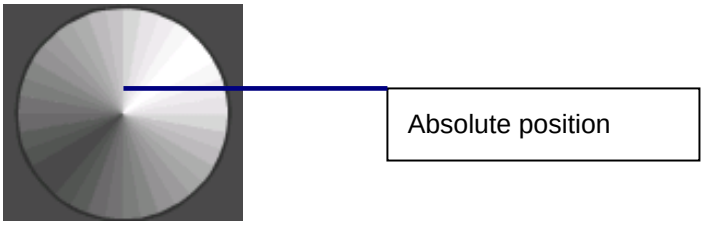
There are four Pan and Tile Modes (PT) for users to operate the PTZ device. To select one of the PT modes, please click on the icon under PT Mode panel.

PT mode

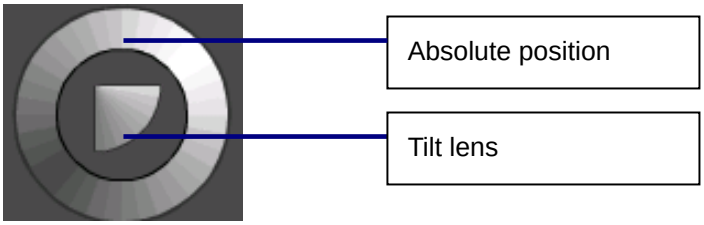
PT mode with speed



Pan mode at absolute position

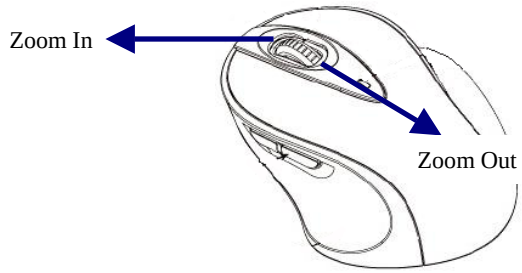


Pan and tilt modes at absolute position



Chapter 3-2-2 Video-Click-N-Move

To perform video-click-n-move, please use a computer mouse. Move mouse cursor pointing to the target object on top of VLC plugin (video area). Perform left mouse click. The action can move PTZ lens to the target. Move mouse scroll wheel forward or backward that can perform PTZ zoom in and PTZ zoom out. Double click on VLC plugin that can expand the video in full screen mode.



Chapter 3-2-3 Audio

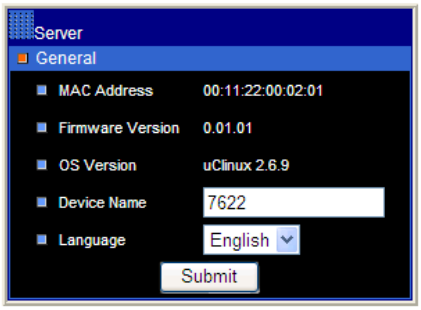
For IP Mini Dome series, to access audio, please click on Audio or Mute button. To turn audio's volume, please drag audio volume control.

Chapter 3-3 Configuration

H.264 AVC IP camera's administrator can configure H.264 AVC IP camera via standard HTML web page. This chapter explains the detail of each configuration setting.

Chapter 3-3-1 Server Settings

Server settings contain H.264 AVC IP camera server's system information such as MAC address, firmware version, users, system timer, and other system settings. To change or to use these options, please follow the instructions at this section.



Firmware Version

Firmware update allows a user to upgrade H.264 AVC IP camera's firmware remotely. A user can use firmware version to verify that if the device has the latest update.

Device Name

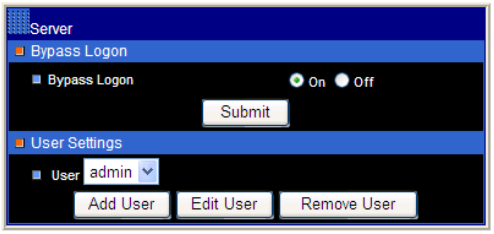
The device name can be used by IPScan utility to identify the H.264 AVC IP camera—To change the device name, enter the name for H.264 AVC IP camera and click on Submit button.

Language

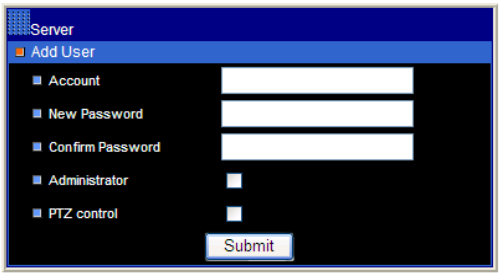
Language setting can be changed dynamically.

Chapter 3-3-2 User Settings

There are ten user accounts allowed. Each account can be configured for its access rights. To add/edit a user, please click on Add/Edit User button. To access H.264 AVC IP camera without authentication, set Bypass Logon radio button to ON.

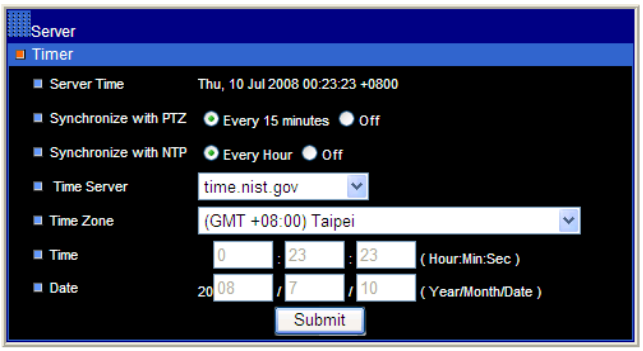


To change account name, please type new account name in Account edit box. To change new password, please type the new password in the New Password edit box. Click on Submit button to update the user settings. Administrator (configuration) and PTZ control access rights can be configure for a user. To specify a particular access right, please click on the property and click on Submit button. To delete a user, please click on "Remove User" button.



Chapter 3-3-3 Timer

H.264 AVC IP camera allows a user to change system timer via standard HTML web page. To change H.264 AVC IP camera's system timer, please enter the date and time in the edit boxes. Click on Submit button to apply this operation.



Synchronize with PTZ

PTZ lens has it internal timer system. To synchronize with PTZ lens's internal timer, please select "Every 15 minutes" option.

Synchronize with NTP

To synchronize Internet time system, check Auto Synchronize option to "Every Hour". H.264 AVC IP camera synchronizes its system timer with a time server every hour.

Note: Network Time Protocol feature requires Internet connection.

Chapter 3-3-4 System Setting

Load Default feature allows to load manufacturing default. There are certain critical settings such as IP addresses and video system which do not be affected by this operation. To reboot H.264 AVC IP camera, click on Reboot System hyper link.

Note: In case of forgetting password, the device is required to send back to our company for a manufacturing default or read appendix for emergency default.

To update firmware of H.264 AVC IP camera, please click on Firmware Update hyper link. Locate “flash2235.bin” in your computer by click the Browse button. Click Submit button to finish firmware upgrade. To ensure the quality of transmission, please make sure that there is no user accessing H.264 AVC IP camera during the firmware upgrade.

Firmware Update
Please do not turn off power and wait until this web page shows up automatically. Fail to update firmware correctly due to network communication issue that it may damage this machine and is required to ship back to your vender for repair.
Firmware
Browse
Submit
Cancel

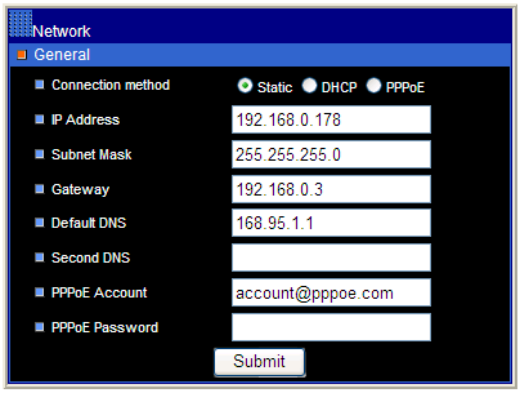
Chapter 3-4 Network

H.264 AVC IP camera provides many Internet protocols such as IP, DHCP, PPPoE, and DDNS. A user can configure these Internet protocol settings. To setup above, please read the following sections:

Chapter 3-4-1 General Settings

Network general settings are the basic settings connecting H.264 AVC IP camera to the network. The default IP Address of H.264 AVC IP camera is 192.168.0.200. A user can use this IP address to verify the network connection between a local PC and H.264 AVC IP camera using Internet Browser.

For local area network configuration, please enter, at least, IP address, Subnet Mask, and Gateway IP. Click Submit button to update these settings.



For Internet access configuration, please contact your local ISP for global IP address. Once the physical Internet connection gets installed, enter IP address (global), Subnet Mask, and Gateway IP from the ISP.

- **Default DNS IP Address**—First Domain Name Server, the IP address of the domain name server
- **Second DNS IP Address**—Second Domain Name Server, the IP address of the domain name server, a backup DNS server for default DNS
- **PPPoE Account**—Account name of PPPoE service
- **PPPoE Password—**Password of PPPoE service

Chapter 3-4-2 DHCP Setting

Router, gateway, or other software DHCP servers can dynamically assign an IP address to H.264 AVC IP camera. There is no need to configure IP address, subnet mask, and gateway. Since the DHCP may assign a different IP address to H.264 AVC IP camera after power off, a user can use IPScan utility to launch Internet browser for searching H.264 AVC IP camera. To enable DHCP, click on DHCP option and click on Submit button.

Note: Once the DHCP option gets enable, FAST DOME IP CAMERA uses IP address from DHCP server instead of the IP address assigned by IP Settings. This feature allows only in LAN.

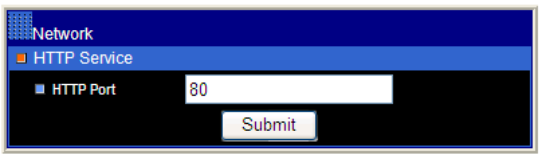
Chapter 3-4-3 PPPoE Settings

Point-to-Point Protocol over Ethernet (PPPoE) is an Internet protocol that is capable of receiving dynamic global IP address from an ISP. This protocol allows switching to another global IP address to maintain the Internet connection due to expiration of a global IP address based on ISP's IP distribution's policy.

Primary purpose of adopting PPPoE can avoid the fee of leasing global IP address. Please consult your local ISP for this service. To use PPPoE, please provide account and password information for the service.

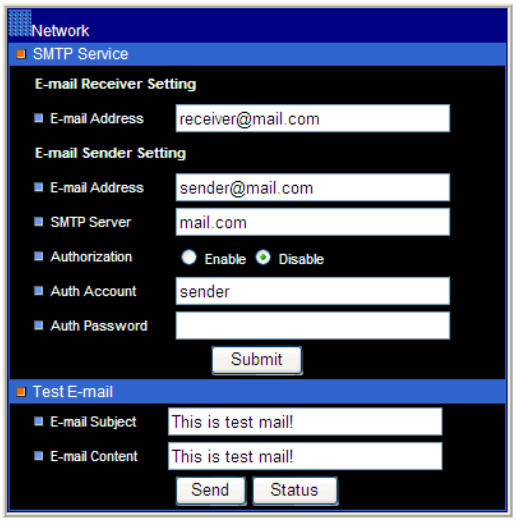
Chapter 3-4-4 HTTP Service

HTTP protocol is a reliable protocol for sending video streaming. Port forwarding technology can be used for sending video over Internet. The detail is described in the appendix. For changing HTTP service's port number, please consult available port number from your network administrator. Change the port number at the port field and click on "Submit" button.



Chapter 3-4-5 SMTP Service

Alarm or motion notification feature can send alarm or motion detection snapshot to an E-mail account. To enable alarm or motion sending E-mail feature, please setup the following email accounts.



- E-mail receiver setting

  E-mail address— E-mail address of the recipient

- E-mail sender setting

  E-mail address— E-mail address of the sender

  SMTP server— Sender's SMTP server

  Authorization— SMTP server's authorization option if applicable

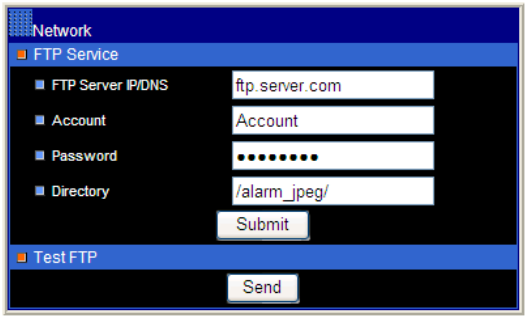
  Authorization account— Account of the SMTP server

  Authorization password— Password of the account

To send a testing snapshot to a SMTP server, please click "Send" button to test and to verify the connection of the SMTP server.

Chapter 3-4-6 FTP Service

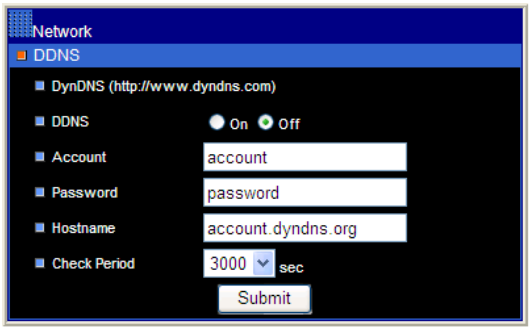
Alarm or motion notification feature can send alarm or motion detection snapshot to an FTP account. To enable alarm or motion sending FTP feature, please setup the following FTP account information.



- FTP server IP/DNS— IP address or domain name of the FTP server
- Account— Account of the FTP server
- Password— Password of the account
- Directory— File saving directory

Chapter 3-4-7 DDNS Settings

DNS stands for domain name server, which provides domain name translation service for a device's IP. Basically, domain name is easier to remember than numeric values (IP). DNS service requires service registration and subscription. DynDNS (DDNS) provides domain name service without subscription. Please logon www.dyndns.org and register for the service. To use DDNS, please enter DDNS server, account ID, and password to logon to the server. Click on Submit button to perform the task. The DDNS message box shows the connection status sent by DynDNS server, after H.264 AVC IP camera establishes network connection with DDNS server.



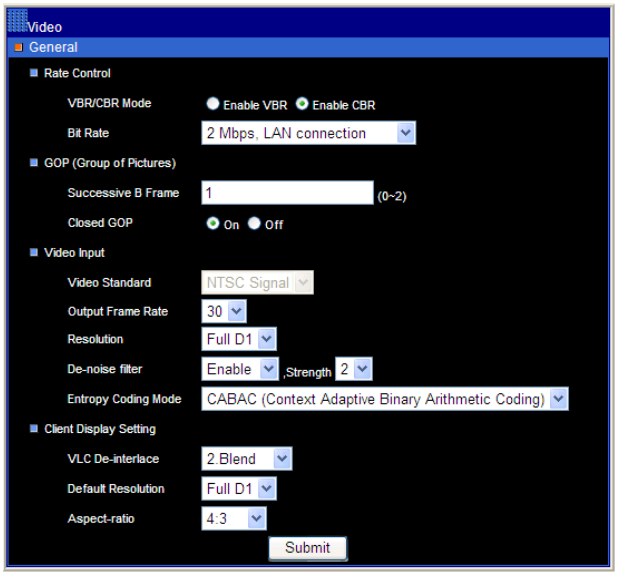
Note: DDNS feature requires Internet connection.

Chapter 3-5 Video Settings

This section describes the details in setting H.264 AVC video's attributes. VBR/CBR, bit rate control, GOP (group of picture), video input, video resolution, entropy coding, and de-interlace settings can be configured.

Chapter 3-5-1 Video General

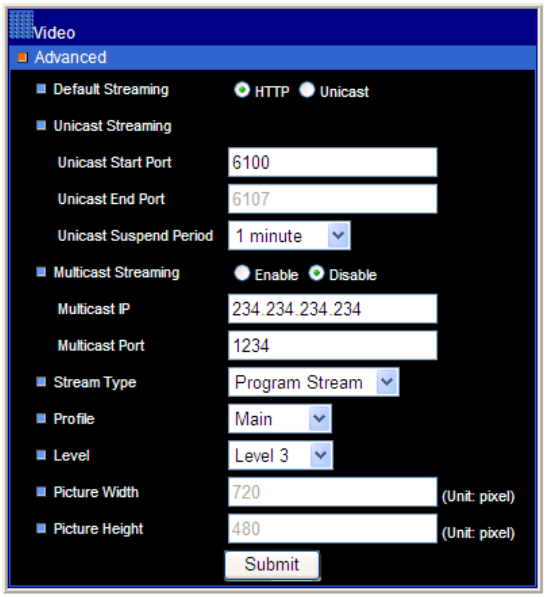
For transmitting H.264 AVC over low bandwidth network such as Internet, please set the bit rate close to network upload bandwidth. H.264 AVC can encode H.264 AVC frames based on the bit rate setting.



- VBR/CBR: Variable bit rate/constant bit rate if limited frame size is required for an application, set this option to CBR
- Bit Rate: Maximum bit rate available for a network connection. H.264 AVC engine encodes video based on the bit rate setting
- Successive B frame: number of successive B frames
- Video standard: NTSC/PAL video system
- Output frame rate: H.264 AVC engine maximum throughput
- De-noise filter: Noise filter
- Entropy coding mode
- De-interlace: VLC Plugin AcitveX de-interlace setting
- Default resolution: default VLC Plugin output resolution regardless of video source resolution.
- Aspect ratio: 5:4, 4:3, 16:9, 16:10 VLC Plugin resolution.

Chapter 3-5-2 Video Advanced

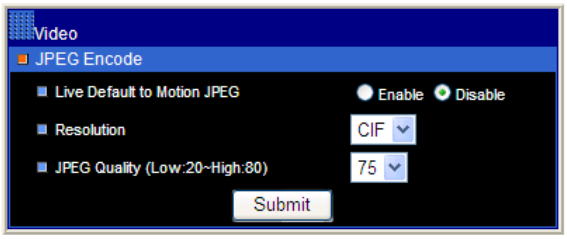
There are three ways including HTTP, unicast, and multicast for transmitting H.264 AVC over a network. By default, please select HTTP for reliable network protocol. UDP unicast and multicast are for advanced use. There are programming required for UDP unicast and multicast.



- Default Streaming: HTTP over TCP/unicast over UDP unicast
- Unicast Start Port: Starting port number for a unicast H.264 AVC streaming
- Unicast End Port: Ending port number for a unicast H.264 AVC streaming
  Total H.264 AVC sessions are 5 connections.
- Unicast Suspend Period: Unicast time out period to avoid network flood.
- Multicast Enable multicast H.264 AVC streaming
- Multicast IP: Multicast IP address
- Multicast Port: Port number for the multicast IP address
- Stream Type: MPEG streaming type
- Profile: Main profile can provide better compression rate and video quality than baseline.
- Level: H.264 compression level
- Picture width and height: Video resolution

Chapter 3-5-3 JPEG Encoding

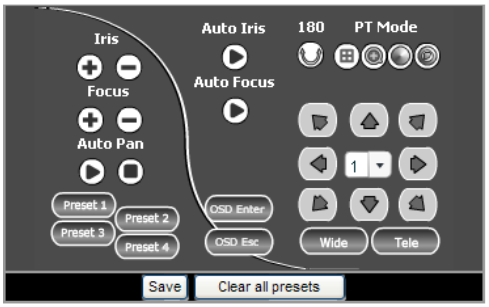
It is highly recommended to use JPEG encoding when asynchronous bandwidth networks are used. If H.264 AVC IP camera has to transmit video over very low bandwidth such as Internet and a high network bandwidth such as LAN, JPEG in CIF can be set as default for sending video for low bandwidth network. H.264 AVC video can be used for high network bandwidth network to gain best video resolution.



- Live Default to Motion JPEG: Set JPEG video as default
- Resolution: CIF
- JPEG Quality: JPEG encoding picture quality

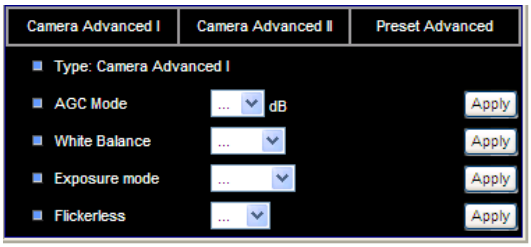
Chapter 3-6 PTZ Settings

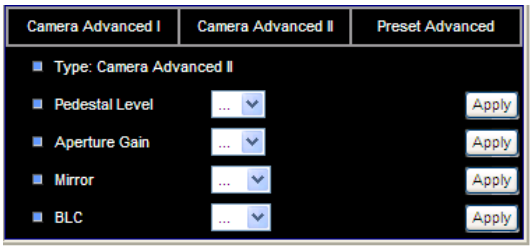
To setup PTZ preset points, please select Camera ID (RS-485ID) first. For RS-485ID, please refer to PTZ user manual for detail. Once RS-485ID has been set, please select preset point. Move the lens to desired position by using pan, tilt, and zoom buttons. Adjust the lens' iris and focus by using iris and focus buttons.



Chapter 3-6-1 PTZ Advanced Settings

For internal PTZ leans settings, information such as AGC mode, auto white balance, expose, flickerless, back light compensation, mirror, and reset camera to default can be configured. For detail setting, please refer to the Fast Dome's user manual.

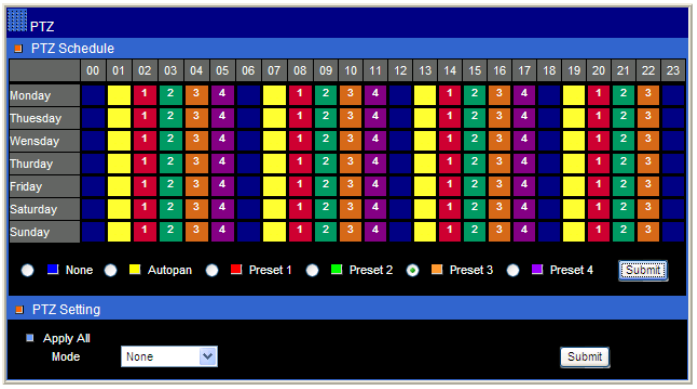




Chapter 3-6-2 PTZ Schedule Settings

To setup PTZ scheduling, please select PTZ schedule link. Use the mouse select on the radio button of the preset types, None, Autopan, Preset #1, Preset #2, Preset #3, and Preset #4.

Click on the hour of the calendar control to configure the preset action.



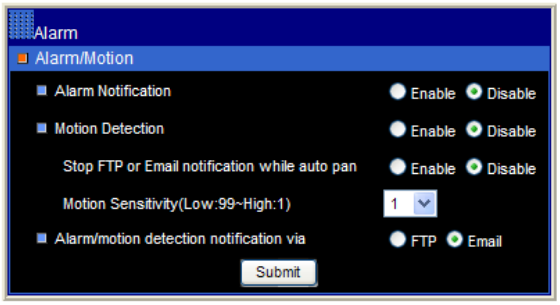
Chapter 3-7 Alarm Settings

H.264 AVC IP camera's hardware alarm system contains motion detection, alarm sensors, and one alarm/relay output. Many alarm features such as motion/alarm email notification and FTP archiving can be found at this section.

Chapter 3-7-1 Motion/Alarm Setup for PTZ

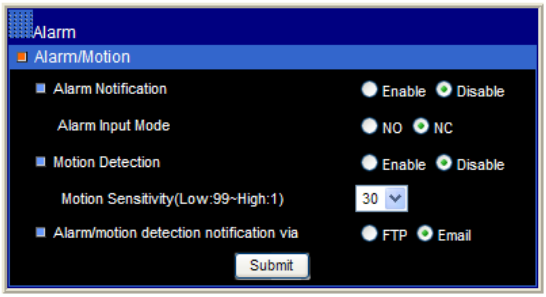
There are motion detection zones allowed in H.264 AVC IP camera. A user can enable the detection zones with different sensitivities ranging from 1 to 99 (highest to lowest) for motion detection. Once a suspicious motion activity gets triggered, H.264 AVC IP camera can start to capture one JPEG snapshot on various recording mediums.

Each PTZ device has external alarm sensors. The external alarm sensors can be triggered for sending FTP and E-Mail snapshots. To enable alarm or motion notifications, options are described as follows:

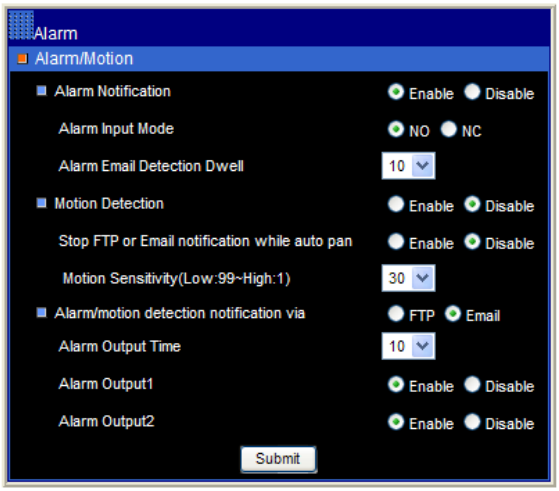


Chapter 3-7-2 Motion/Alarm Setup for Camera with Alarm Input

- **Alarm Notification—**Enable PTZ alarm notification.
- **Alarm Input Mode—**Normal open/normal close alarm input
- **Motion Detection—**Enable motion detection notification.
- **Motion sensitivity—**1 to 99 (highest to lowest).
- **Alarm/motion detection notification via—**FTP or Email

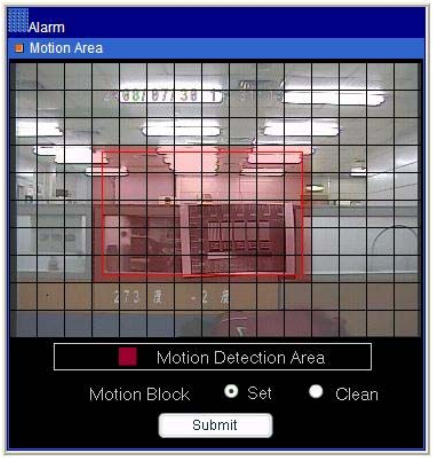


For video encoder model, since there are two alarm outputs, a user can specify alarm output time.



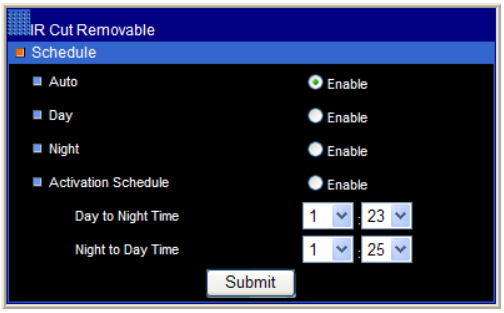
Chapter 3-7-3 Motion Area

Once above information get set, please configure the motion area of the monitored environment. To configure motion area, perform mouse click on the video area.



Chapter 3-8 IR Cut Removable

IR Cut removable allows to schedule IR activation by (1) auto, (2) in, (3) out, or (4) schedule. When the setting is set to "Auto", IR activation is determined by the light sensor. "In" setting means that the IR cut feature is removed. "Out" setting means that the IR cut feature is forced to be always on. When activation schedule is enabled, IR cut feature can be scheduled based on a specific time frame. For example, a user can set the IR cut activation time starting from 19:00 pm (day to night time) until 6:00 am (night day time).



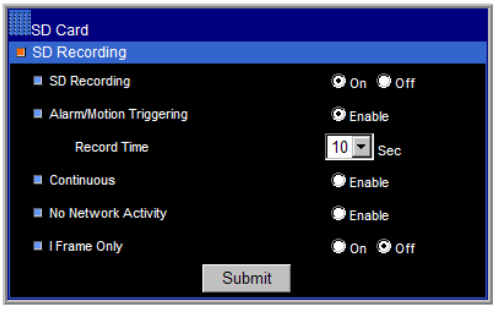
Note: This feature is only applicable to IR camera.

Chapter 3-9 Alarm Output

For IR camera, it has built-in NO/NC relay intput, dry contact, DC 24 1A. To enable, relay output, please check “Activate alarm output” at the bottom of live video control.

Chapter 3-10 SD Card Recording

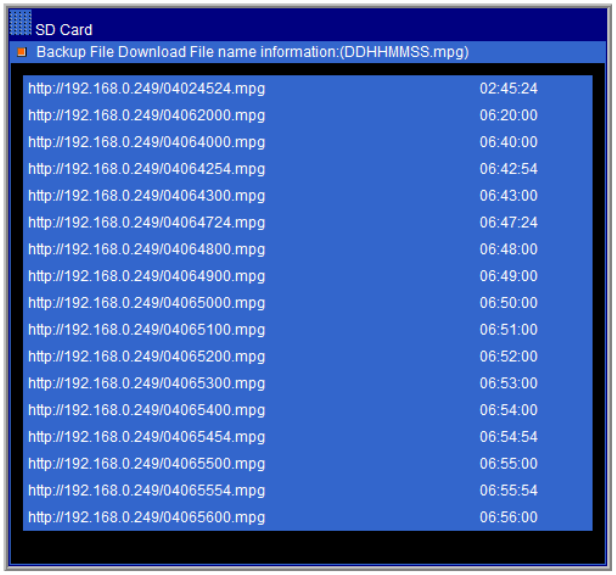
The SD card can record H.264 AVC video clips when alarm/motion triggered, continuous recording, or no network activity. To enable SD Recording feature, please set the option to On. The details are described as below:



- **Alarm/Motion Triggering—**Activate SD Recording when alarm/motion triggers.
- **Record Time—**Recording duration after alarm/motion triggering
- **Continuous —**Continuous recording
- **No Network Activity—**Record when network loss connection or no client connection
- **I-Frame Only—**Record only I frame

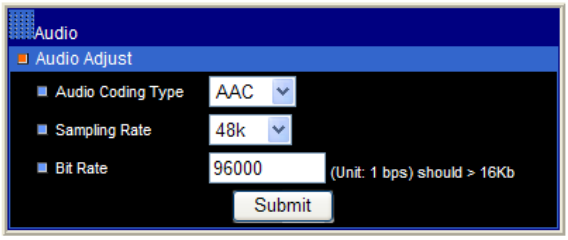
Chapter 3-10-1 Download SD Card Recording

The SD Card recordings can be downloaded via HTTP web interface. To download the file, simply click on the hyper link to download the file. To play the video clips, please use KMPlayer for playing the H.264 video files.



Chapter 3-11 Audio Setting

Audio coding types can be AAC/G.711. To setup correct audio coding type, please select audio coding type in the dropdown with proper bit rate set.

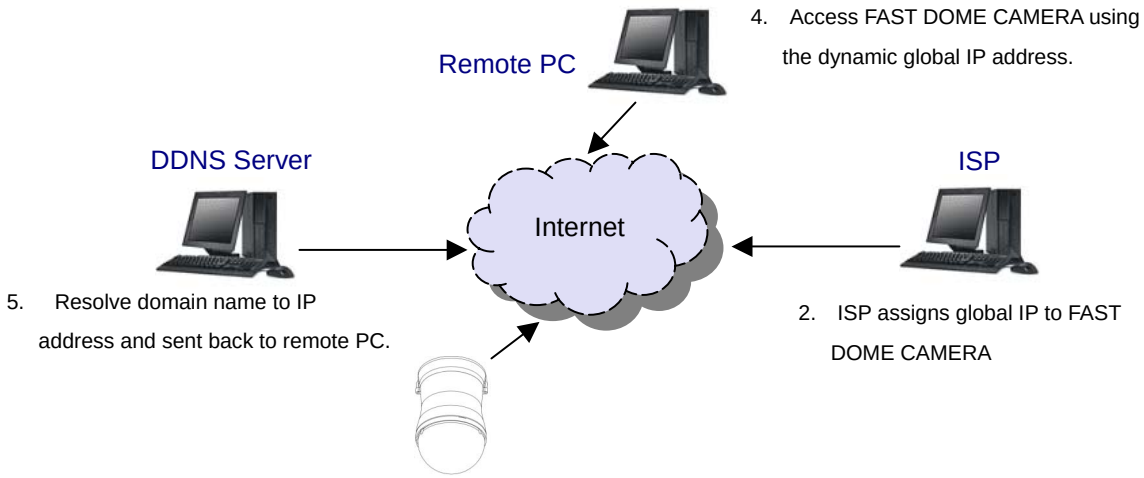


Note: Browser's plug-in can only support AAC audio type.

Appendix

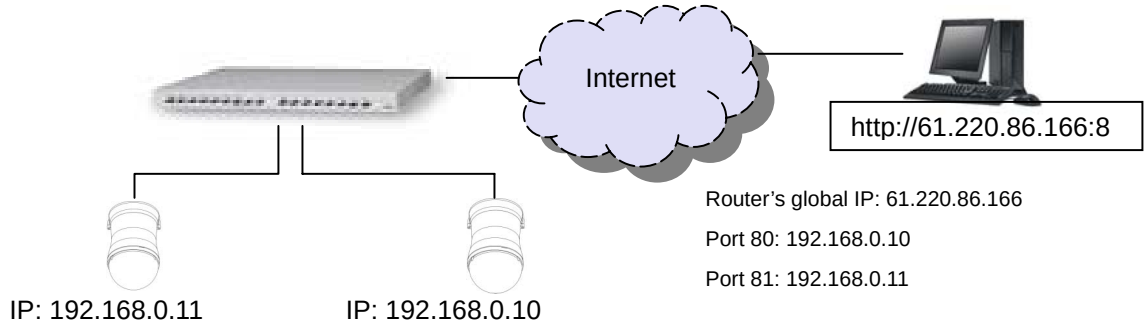
Advance Network DDNS and PPPoE Technologies

The advantage of using DDNS and PPPoE is to save the expense of IP address. H.264 AVC IP camera's PPPoE service gets a dynamic global IP address after system reboot. This IP address may get changed periodically. This is the address needed to access the video server over Internet. When ISP re-assigns a new IP address to H.264 AVC IP camera, H.264 AVC IP camera notifies DDNS service. A remote PC can access H.264 AVC IP camera by typing domain name in a browser. The domain name gets resolved by DDNS service and gets translated to its dynamic global IP address. The dynamic global IP address can now be accessed by the remote PC.


Remote PC
4. Access FAST DOME CAMERA using the dynamic global IP address.
DDNS Server
ISP
Internet
5. Resolve domain name to IP address and sent back to remote PC.
2. ISP assigns global IP to FAST DOME CAMERA

Advance Network Port Forwarding Technology

Port forwarding technology is an advanced network technology which is wildly used for using one global IP shared by many network devices. The network architecture is illustrated as below. Port 80 of the router (61.220.86.166) is assigned to the device IP address, 192.168.0.10. Port 81 of the router is assigned to the device IP address, 192.168.0.11. When Remote PC accesses the router's port 81 (61.220.86.166:81), it eventually accesses the video server at 192.168.0.11.



1. Get IP address from ISP after reboot.
2. Notify DDNS server for the new IP address if FAST DOME CAMERA gets reboot or assigned a new IP address.

Emergency Factory Default

IP Fast Dome model

To restore the server to factory default settings by hardware, please follow the following steps:

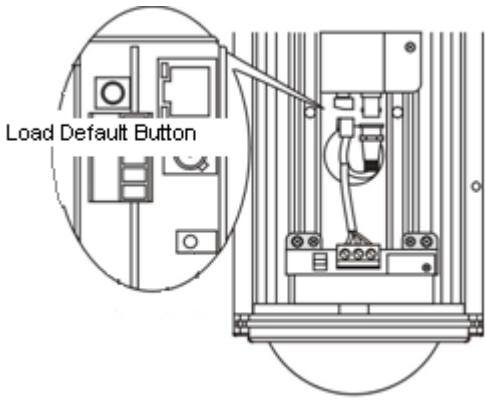
1. Connect the IP device to a hub.
2. Connect a PC to the hub with IPScan installed.
3. Connect GPIO Input #6 (red/dry contact) to GND (black) with small wire for 10 seconds
4. It reboots itself.
5. Green network LED blinks, On->Off-,ON, to complete load default setting
6. Using IPScan scanning for the IP address of the IP device.
7. Launch Internet browser for the IP address of the IP device.
8. Type default username “admin” and password “pass” for enter web interface of the IP device.

Note: GPIO #6 is revered for emergency factory default. Do not connect GPIO #6 for alarm notification purpose.

IR IP Camera model

To restore the server to factory default settings, please:

1. Hold Load Default Button for 10 second
2. Green network LED blinks, On->Off-,ON, to complete load default setting
3. The server board reboots itself.
4. Using IPScan scanning for the IP address of the IP device.
5. Launch Internet browser for the IP address of the IP device.
6. Type default username “admin” and password “pass” for enter web interface of the IP device.

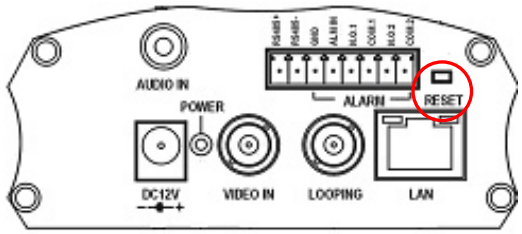


Note: For convenient purpose, IP address resets to default IP address, 192.168.0.200, after performing Load Default operation.

Video Encoder model

To restore the video encoder to factory default settings, please:

1. Hold Load Default Button for 10 second.
2. Green network LED blinks, On->Off-,ON, to complete load default setting
3. The device reboots itself.
4. Using IPScan scanning for the IP address of the IP device.
5. Launch Internet browser for the IP address of the IP device.
6. Type default username “admin” and password “pass” for enter web interface of the IP device.



Specification

		Hi-Res. Fast Dome	IR/IP Fast Dome	Vari-Focal Camera	Video Encoder
Video compression	H.264/AVC Main Profile, Level 3 (I/P/B frames), Motion JPEG				
Resolution	Full D1: 720 x 480 (NTSC) / 720 x 576 (PAL) CIF: 352 x 240 (NTSC) / 352 x 288 (PAL)				
Frame rate	H.264: up to 30/25 FPS at full D1 resolution JPEG: 1 FPS at CIF				
Video streaming	Simultaneous Motion JPEG and H.264 AVC Main Profile Program Stream (PS) and Transport Stream (TS)				
Video bitrate	3Mkbps to 56 Kbps Frame rate and bitrate controllable on-the-fly VBR/CBR supported				
CAVLC/CABAC	Supported				
Security	Base64 HTTP encryption Multiple user access levels with password protection 10 user accounts available				
Users	8 simultaneous unicast users (H.264) 8 simultaneous HTTP users (H.264) 8 simultaneous HTTP users (JPEG) Unlimited users using multicast (H.264)				
Alarm/motion	Events triggered by built-in motion detection 15*10 motion detection zone				
	PTZ preset triggered by external inputs	Yes			
	Image upload over FTP and e-mail by motion detection and external alarm inputs				
CPU, memory	Embedded SoC ARM926, 166 Mhz, 64MB DDR, 4 MB flash memory				
Web PTZ control	Pan, tilt, zoom in/out, and absolute position, for PTZ model only	Yes	Yes	—	Yes
Preset scheduling	PTZ model only	Yes	Yes	—	Yes
IR Cut Removal	Auto, in, out, and scheduling, for IR camera model only.	—	—	Yes	—
Alarm input	DC 24 1A, dry-contact	6	—	1	1
Alarm output	DC 24 1A, dry-contact	1	—	1	2
Maintenance	Firmware update via HTTP Firmware available at web site				
Network interface	10Mbps/100Mbps, RJ-45				
PC requirement	OS: Windows 2000, Windows XP, Windows Vista Browser: Windows Internet Explore 5.0 or above CPU: Intel Pentium 4 1.8GHz or above RAM: 1GB or above				
Audio	Mono MPEG-4 AAC, 48 KHz, 96 Kbps/G.711	—	Yes	—	Yes
SD Card recording	Support up to 2GB sd card for circular regarding	—	—	—	Yes
Network protocols	IP, TCP, UDP, HTTP, SMTP, ESMTP, NTP, DDNS, FTP, ARP, DHCP, PPPoE, DNS, Telnet				
Mobile phone & PDA	Free eMobile software for Java mobile phone, Windows Mobile 5/6, PDA, and vlc4iphone on iPhone				
System integration	HTTPAPI downloadable				
CMX	Free CMX support				
Video display	VLC: H.264 HTTP, unicast, and multicast streaming & ActiveX: for JPEG				
OS	Embedded Linux 2.6.9				

DISTRIBUTOR：